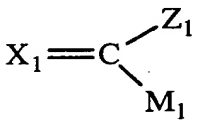
NOVEL PHOTOINITIATORS AND APPLICATIONS THEREFOR

Abstract of the Disclosure

The present invention is directed to new, energy-efficient, photoinitiators having the following general formula:



wherein of X_1 is a conjugated system such as one or more aryl groups or substituted aryl groups; Z_1 is –O, –S, an alkyl group having from one to six carbon atoms, an ester moiety, a ketone moiety, an amine moiety, an imine moiety, an ether moiety, an aryl or substituted aryl group, a metal or non-metal, or a metal or non-metal containing group, such as a zinc-containing group or a boron-containing group, respectively; and M_1 is an alkyl group, a substituted alkyl group, or forms a five-member ring with Z_1. The present invention is also directed to a method of generating a reactive species, which includes exposing one or more photoinitiators to radiation to form one or more reactive species. Also described are methods of polymerizing polymerizable materials, methods of curing an unsaturated oligomer/monomer mixture, and methods of laminating using the photoinitiators of the present invention. In addition, the present invention is directed to ink compositions, adhesive compositions and resins, and methods of printing using the above-described photoinitiators.